

AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Bailey III et al.

Attorney Docket No.:

LAM1P123/P0557

Application No.: 09/470,236

Examiner: Alejandro Mulero, Luz L.

Filed: November 15, 1999

Group: 1763

Title: PLASMA PROCESSING SYSTEM WITH
DYNAMIC GAS DISTRIBUTION CONTROL

Confirmation No. 5922

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on February 7, 2007 in an envelope addressed to the Commissioner for Patents, Mail Stop Appeal Brief-Patent, P.O. Box 1450 Alexandria, VA 22313-1450.

Signed:


Kristina Gomez

**TRANSMITTAL OF REPLY BRIEF
IN RESPONSE TO EXAMINER'S ANSWER**

Mail Stop Appeal Brief-Patents
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith in is the Reply Brief In Response To Examiner's Answer mailed December 28, 2006.

This reply brief is being filed within two (2) months of the mailing date of the Examiner's Answer.

Applicant believes that no extension of term is required. If an additional extension of time is required, however, please consider this a petition therefor.

☒ Charge any additional fees or credit any overpayment to Deposit Account No. 500388, (Order No. LAM1P123).

Respectfully submitted,
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PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

EX PARTE BAILEY et al.

Application for Patent

Filed: November 15, 1999

Serial No. 09/470,236

FOR:

**PLASMA PROCESSING SYSTEM WITH DYNAMIC GAS DISTRIBUTION
CONTROL**

REPLY BRIEF TO EXAMINER'S ANSWER

CERTIFICATE OF MAILING

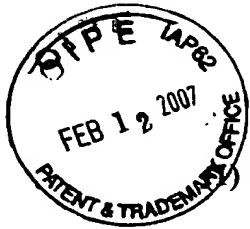
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STATUS OF CLAIMS

There are a total of 50 claims pending in this application (claims 1-10, 16-17, 19, 23-25, 28-33, 35-36, 42-45, 48, 50, 54 and 57-75). Claims 11-15, 18, 20-22, 26-27, 34, 37-41, 46-47, 49-53, and 55-56 have been canceled. Claims 1-10, 16-17, 19, 23-25, 28-33, 35-36, 42-45, 48, 50, 54 and 57-75 were examined and rejected.

(2) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 63 and 69 have been rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement.

The rejection of each of claims 63 and 69 under § 112 is appealed.

Claims 1, 3, 7-10, 16-17, 70-71, and 75 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 6,009,830 issued to Li et al. (hereinafter "Li") in view of Fujii et al., US Patent No. 4,980,204 (hereinafter "Fujii") or Fujiyama et al., US Patent No. 4,529,474, or Yamazaki et al., US Patent No. 4,105,810.

Claims 1-5, 7-10, 16-17, 50, 57, 59, 62, 67-68, 70-71, and 75 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Li et al., US Patent No. 6,070,551 in view of Fujii et al., US Patent No. 4,980,204, or Fujiyama et al., US Patent No. 4,529,474, or Yamazaki et al., US Patent No. 4,105,810.

Claim 6 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Li et al., US Patent No. 6,070,551 in view of Fujii et al., US Patent No. 4,980,204, or Fujiyama et al., US Patent No. 4,529,474, or Yamazaki et al., US Patent No. 4,105,810, as applied to claims 1-5, 7-10, 16-17, 50, 57, 59, 62, 67-68, 70-71, and 75, and further in view of Wing et al., US Patent No. 6,277,235.

Claims 58, 60-61, and 63-65 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Li et al., US Patent No. 6,070,551 in view of Fujii et al., US Patent No. 4,980,204, or Fujiyama et al., US Patent No.

4,529,474, or Yamazaki et al., US Patent No. 4,105,810, as applied to claims 1-5, 7-10, 16-17, 50, 57, 59, 62, 67-68, 70-71, and 75, and further in view of Li et al., US Patent No. 6,009,830.

Claims 1-5, 7-9, 16-17, 19, 23-25, 28-33, 35, 42-44, 48, 50, 54, 66-68, 70-73, and 75 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Collins et al., US Patent No. 6,024,826 in view of Fujii et al., US Patent No. 4,980,204, or Fujiyama et al., US Patent No. 4,529,474, or Yamazaki et al., US Patent No. 4,105,810.

Claims 6 and 36 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Collins et al., US Patent No. 6,024,826 in view of Fujii et al., US Patent No. 4,980,204, or Fujiyama et al., US Patent No. 4,529,474, or Yamazaki et al., US Patent No. 4,105,810, as applied to claims 1-5, 7-9, 16-17, 19, 23-25, 28-33, 35, 42-44, 48, 50, 54, 66-68, 70-73, and 75, and further in view of Wing et al., US Patent No. 6,277,235.

Claims 10 and 57-65 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Collins et al., US Patent No. 6,024,826 in view of Fujii et al., US Patent No. 4,980,204, or Fujiyama et al., US Patent No. 4,529,474, or Yamazaki et al., US Patent No. 4,105,810, as applied to claims 1-5, 7-9, 16-17, 19, 23-25, 28-33, 35, 42-44, 48, 50, 54, 66-68, 70-73, and 75, and further in view of Li et al., US Patent No. 6,070,551.

Claims 45 and 74 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Collins et al., US Patent No. 6,024,826 in view of Fujii et al., US Patent No. 4,980,204, or Fujiyama et al., US Patent No. 4,529,474, or Yamazaki et al., US Patent No. 4,105,810, as applied to claims 1-5, 7-9, 16-17, 19, 23-25, 28-33, 35, 42-44, 48, 50, 54, 66-68, 70-73, and 75, and further in view of Ueda et al., US Patent No. 5,810,932 and Kadomura, US Patent No. 6,096,160.

Claims 1-5, 7-10, 16-17, 19, 23-25, 28-33, 35, 42-44, 48, 54, 57, 59, 62, 66, 70-72, and 75 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Murugesh et al., US Patent No. 6,228,781 in view of Fujii et al., US Patent No. 4,980,204, or Fujiyama et al., US Patent No. 4,529,474, or Yamazaki et al., US Patent No. 4,105,810.

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The rejection of each of claims 1-10, 16-17, 19, 23-25, 28-33, 35-36, 42-45, 48, 50, 54, and 57-75 under 35 U.S.C. § 103(a) is appealed.

(3) ARGUMENTS

A. Rejection of Claims 63 and 69 under 35 U.S.C. § 112.

The Examiner argues that there is no support for the limitation that input gases released by the gas distribution plate and the gas ring are identical because there may be impurities contained within the piping. However, the Examiner is assuming facts that are not contained anywhere in the specification. The Applicant has provided specific instances where the specification indicates that the input gases may be identical. As long as there is a single embodiment disclosed in the specification where the gases are identical, then there is support for the claimed limitation. Applicant respectfully maintains that it is inappropriate for the Examiner to introduce new matter into the specification in order to make a disclosed embodiment not support a claim. Quite simply, there is nothing in the specification indicating the possibility that impurities may be introduced making the originally identical gases non-identical.

Nevertheless, even if one were to accept the Examiner's line of reasoning and believe that impurities could be introduced into the mixtures making them non-identical, the claim would still have support as long as one could also assume that there would be at least one instance or occurrence where the gases would remain identical (either by no impurities being introduced or by the same impurities introduced into each mixture). Since such an assumption would be logical, the claim finds support even if one were to accept the Examiner's line of reasoning.

B. The prior art teaching of deposition chambers and failure to teach a plasma etcher

The Examiner argues that the argued claim limitations are method limitations and not apparatus limitations, and since the claims are directed to an apparatus, the method limitations are non-limiting.

The Applicant has addressed all of these arguments in the Appeal Brief, and Applicant points to that document for more detail regarding this subject as it appears that the Examiner's Answer fails to address any of the arguments from the Appeal Brief.

The disputed limitations are in fact structural, and not methods, and thus cannot simply be ignored as the Examiner is intending to do.

C. The motivation to combine the prior art references

The Examiner argues that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. As described above, Applicant believes that the disputed limitations are structural and not method in nature. Nevertheless, in this section rather than arguing that the prior art does not teach a claimed limitation, the Applicant is arguing that there is no motivation to combine the prior art references. Specifically, it is not that that the claims disclose one type of chamber while the prior art teaches another. Rather, it is that the different prior art references teach different types of chambers and the Examiner has combined these disparate references without any regard to the motivation of one of ordinary skill in the art to do so or the ability to merge them into an operable invention.

Combining a prior art reference teaching a deposition chamber with a prior art reference teaching an etch chamber would not be obvious. The Examiner argues that both etch chambers and deposition chambers are both plasma-assisted processes in the semiconductor field and thus it would be obvious to combine them. However, merely because the references come from the same, very broad general field does not make the combination of the references obvious. Both an airplane and a bicycle are in the same general field (transportation devices). An airplane may have wings, altimeter, and a rudder, but it would not ordinarily be obvious to modify a bicycle to have wings, an altimeter, and a rudder merely because they both are transportation devices. As such, Applicant respectfully submits that there is no motivation to combine the cited references.

D. The Li (551) reference

The Examiner argues that the failure of the Li (551) reference to teach or suggest delivering the single input gas to at least two different regions is irrelevant because Fujii, Fujiyama, or Yamazaki are being relied upon for this limitation. Applicant recognizes that the Examiner is not relying upon the Li (551) reference for this purpose but points to the discussion below in sections H-M as to why Fujii, Fujiyama, and Yamazaki also fail to teach this limitation.

E. The Murugesh reference

The Examiner argues that the failure of the Murugesh reference to teach or suggest delivering the single input gas to at least two different regions is irrelevant because Fujii, Fujiyama, or Yamazaki are being relied upon for this limitation. Applicant recognizes that the Examiner is not relying upon the Murugesh reference for this purpose but points to the discussion below in sections H-M as to why Fujii, Fujiyama, and Yamazaki also fail to teach this limitation.

F. The Collins reference

The Examiner argues that the failure of the Collins reference to teach or suggest delivering the single input gas to at least two different regions is irrelevant because Fujii,

Fujiyama, or Yamazaki are being relied upon for this limitation. Applicant recognizes that the Examiner is not relying upon the Collins reference for this purpose but points to the discussion below in sections H-M as to why Fujii, Fujiyama, and Yamazaki also fail to teach this limitation.

G. The Li (830) reference

The Examiner argues that the failure of the Li (830) reference to teach or suggest delivering the single input gas to at least two different regions is irrelevant because Fujii, Fujiyama, or Yamazaki are being relied upon for this limitation. Applicant recognizes that the Examiner is not relying upon the Li (830) reference for this purpose but points to the discussion below in sections H-M as to why Fujii, Fujiyama, and Yamazaki also fail to teach this limitation.

H. The Fujii reference

The Examiner argues that Fujii was applied to teach a single input gas which comprises a mixture of gases and delivering the single input gas to at least two different regions. However, Applicant pointed out in the Appeal Brief that Fujii does not deliver gas to different regions, but only delivers gas to multiple points in the same region. In fact, none of the prior art teaches delivering the same gas to multiple regions. The Examiner then also argues that Murugesh, Collins, or Li (830) teach different regions. That may be so, but that does not mean that the combined references would teach delivering the same gas to different regions. In fact, such a combination would only teach delivering different gases to different regions.

It appears that one of the key areas of dispute in this case is the claim limitation that the same input gas be delivered to two different regions. The Examiner appears to be attempting to split the teaching of this limitation up among several prior art references, for example, arguing that Murugesh teaches the different regions part while Fujii teaches the same gas part. However, such an argument is non-sensical. The Examiner now has gone beyond the idea of finding one claim element in one reference, another claim element in another reference, and combining the references to teach the claim. The Examiner is attempting to take half of a claim element from one reference and another

half from a different reference, but the two halves do not match up. Delivering the same gas to different regions is a single idea, and breaking it up into multiple ideas destroys the meaning of the single idea. As such, the Fujii reference fails to teach or suggest the required components relied upon by the Examiner.

I. The Fujiyama reference

The Examiner argues that Fujiyama was applied to teach a single input gas which comprises a mixture of gases and delivering the single input gas to at least two different regions. However, Applicant pointed out in the Appeal Brief that Fujiyama does not deliver gas to different regions, but only delivers gas to multiple points in the same region. In fact, none of the prior art teaches delivering the same gas to multiple regions. The Examiner then also argues that Murugesh, Collins, or Li (830) teach different regions. That may be so, but that does not mean that the combined references would teach delivering the same gas to different regions. In fact, such a combination would only teach delivering different gases to different regions. As described above in Section H, such a combination is non-sensical.

J. The Yamazaki reference

The Examiner argues that Yamazaki was applied to teach a single input gas which comprises a mixture of gases and delivering the single input gas to at least two different regions. However, Applicant pointed out in the Appeal Brief that Yamazaki does not deliver gas to different regions, but only delivers gas to multiple points in the same region. In fact, none of the prior art teaches delivering the same gas to multiple regions. The Examiner then also argues that Murugesh, Collins, or Li (830) teach different regions. That may be so, but that does not mean that the combined references would teach delivering the same gas to different regions. In fact, such a combination would only teach delivering different gases to different regions. As described above in Section H, such a combination is non-sensical.

K. The Fujii reference and claim 1

This reference and its applicability to claim 1 are described above in Section H.

L. The Fujiyama reference and claim 1

This reference and its applicability to claim 1 are described above in Section H.

M. The Yamazaki reference and claim 1

This reference and its applicability to claim 1 are described above in Section H.

N. Claim 19

The same arguments with respect to the failure of the prior art references to teach or suggest delivering a single input gas to at least two different regions described above with respect to claim 1 are equally applicable here.

O. Claim 50

The same arguments with respect to the failure of the prior art references to teach or suggest delivering a single input gas to at least two different regions described above with respect to claim 1 are equally applicable here.

P. The failure of Collins to teach or suggest adjusting the amount of the input gas to each of the first and second outputs

The Examiner argues that Collins does teach adjusting the amount of the input gas to each of the first and second outputs and cites column 19, line 64 through column 22, lines 33-35 as evidence of this, and specifically the controller 300. Applicant agrees and hereby withdraws this particular argument, but maintains that Collins fails to teach or suggest other elements of the claims and also that there is no motivation to combine Collins with the other cited prior art as described in more detail above.

Q. The failure to properly reject many of the dependent claims

The Examiner argues that the rejections in the headings constitute sufficient rejections of the dependent claims, despite the fact that the justifications for the rejections in the body of the office actions address older versions of the claims that are now outdated. Applicant respectfully disagrees. The Examiner is required to establish a prima facie case for unpatentability. In this instance, the Examiner has provided a generic rejection for many of the dependent claims that does not indicate how the cited prior art can be combined to teach each of the elements of the claims. This would normally be bad enough, however in this case there are a significant number of references being

combined and the Examiner has failed to provide an indication of which references teach which elements, or how the references should be combined, to teach the updated claims.

The Examiner seems to be hoping to fall back on the generic rejections provided in the headings as the sole basis for rejection of each of the disputed claims. However, this is not a case where generic rejections alone are used and no further justification is provided. In this case, a further justification is provided but that justification is applied to the wrong version of the claims. Thus, it is clear that the Examiner did not intend to rely on the generic heading rejections as the sole basis when the office actions were drafted. At that point the Examiner found it necessary to describe the rejections in more detail. The Examiner cannot now take that back and try and argue that the generic heading rejections are enough.

The Applicant should not be required to guess at the basis for rejections of claims. As such, applicant respectfully submits that the disputed claims have not been properly rejected and thus are in condition for allowance.

Conclusion

In view of the foregoing, it is respectfully submitted that none of the pending claims are rendered unpatentable by the cited references. Accordingly, the pending rejections of all of the claims under 35 U.S.C. § 103 should be reversed.

Respectfully submitted,
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